# **ACTUARIAL SCIENCE (ACTSCI)**

#### **ACTSCI 290 Introduction to Actuarial Science**

3 cr. Undergraduate.

Overview of the actuarial profession, financial risks, and types of insurance products; risk components; and risk evaluation methods. **Prerequisites:** Satisfaction of Quantitative Literacy Part A GER. **Last Taught:** Spring 2023, Fall 2022, Spring 2022, Fall 2021. **Current Offerings:** https://catalog.uwm.edu/course-search/

#### **ACTSCI 391 Investment Mathematics I**

4 cr. Undergraduate.

Examination of annuities, loans, bonds, portfolio immunization, and interest rate swaps. Foundational preparation for the Financial

Mathematics (FM) Professional Actuarial Exam.

Prerequisites: a grade of C or better in MATH 211(P) or MATH 232(P).

Course Rules: Previously MATH 311.

Last Taught: Spring 2023, Fall 2022, Spring 2022, Fall 2021. Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 490 Introduction to Actuarial Practice**

1 cr. Undergraduate.

Professional topics such as healthcare, pensions, life insurance, property and casualty, reinsurance, and regulation.

Prerequisites: ACTSCI 290(P).

Course Rules: May be retaken for cr once. Counts as repeat of MTHSTAT

591.

Last Taught: Fall 2022, Fall 2021, Fall 2020, Fall 2019.

Current Offerings: https://catalog.uwm.edu/course-search/

# **ACTSCI 491 Actuarial Workshop FM**

1 cr. Undergraduate.

Continuation of topics from ACTSCI 391 along with practice and preparation for the Financial Mathematics (FM) Professional Actuarial

Prerequisites: ACTSCI 391(C) or consent of instructor.

Course Rules: Counts as a repeat of MTHSTAT 593. Retakeable up to 2 cr

max.

Last Taught: Spring 2023, Fall 2022, Fall 2021, Fall 2020. Current Offerings: https://catalog.uwm.edu/course-search/

# **ACTSCI 492 Actuarial Workshop P**

1 cr. Undergraduate.

Continuation of probability topics from MTHSTAT 361 along with practice and preparation for the Probability (P) Professional Actuarial Exam.

Prerequisites: MTHSTAT 361(C) or consent of instructor.

Course Rules: Counts as a repeat of MTHSTAT 592. Retakeable up to 2 cr

max.

**Last Taught:** Spring 2023, Fall 2022, Spring 2022, Spring 2021. **Current Offerings:** https://catalog.uwm.edu/course-search/

# **ACTSCI 590 Actuarial Internship**

1-6 cr. Undergraduate.

Apply principles and techniques of actuarial science in business, governmental and other appropriate settings.

Prerequisites: soph st; 6 cr 300-level or above in ACTSCI or MTHSTAT;

GPA in ACTSCI and MTHSTAT courses at least 2.5.

Course Rules: One cr earned for academic work based on 40 hours in

internship. May be retaken to 6 cr max.

Last Taught: Summer 2023, Fall 2022, Summer 2022, Spring 2022. Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 591 Investment Mathematics II**

3 cr. Undergraduate.

Mathematical models in finance and economics, corporate finance.

Prerequisites: MTHSTAT 361(P); ACTSCI 391(P).

Course Rules: Counts as repeat of MTHSTAT 692.

Last Taught: Fall 2022, Fall 2021, Fall 2020, Fall 2019.

Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 593 Actuarial Models I**

3 cr. Undergraduate.

Long term insurance coverage, single life survival models, life insurance, annuities, benefit and premium random variables, mortality models. **Prerequisites:** ACTSCI 391(P); MTHSTAT 361(P); MTHSTAT 362(C).

Course Rules: Counts as a repeat of MTHSTAT 691. Last Taught: Fall 2022, Fall 2020, Spring 2019, Spring 2017. Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 594 Actuarial Models II**

3 cr. Undergraduate.

Long term insurance coverage, single life survival models, life insurance, annuities, benefit and premium random variables, mortality models.

Prerequisites: ACTSCI 593(P); MTHSTAT 362(P).

Last Taught: Spring 2023, Spring 2021.

Current Offerings: https://catalog.uwm.edu/course-search/

### **ACTSCI 596 Actuarial Statistics I**

3 cr. Undergraduate.

Loss models for short term insurance and their statistical fitting. **Prerequisites:** MATH 234(P) or MATH 240(P) and MTHSTAT 362(P).

**Course Rules:** Previously MTHSTAT 596. **Last Taught:** Fall 2021, Fall 2019, Fall 2017.

Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 597 Actuarial Statistics II**

3 cr. Undergraduate.

Credibility theory, ratemaking, and reserving.

Prerequisites: MATH 234(P) or MATH 240(P) and MTHSTAT 362(P).

Course Rules: Previously MTHSTAT 597.

Last Taught: Spring 2022, Spring 2020, Spring 2018, Spring 2016. Current Offerings: https://catalog.uwm.edu/course-search/

# **ACTSCI 599 Capstone Experience**

1 cr. Undergraduate.

Independent research on current financial and insurance topics that are

not covered in regular actuarial courses.

Prerequisites: senior standing.

Course Rules: May be retaken for cr once.

**Last Taught:** Spring 2023, Fall 2022, Summer 2022, Fall 2021. **Current Offerings:** https://catalog.uwm.edu/course-search/

# **ACTSCI 790 Actuarial Internship**

1-6 cr. Graduate.

Apply principles and techniques of actuarial science in business,

governmental and other appropriate settings.

Prerequisites: graduate standing.

Course Rules: One cr earned for academic work based on 40 hours in

internship. May be retaken to 6 cr max.

Last Taught: Summer 2023, Spring 2023, Fall 2022, Summer 2022. Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 791 Investment Mathematics II**

3 cr. Graduate.

Mathematical models in finance and economics, corporate finance.

Prerequisites: graduate standing.

Last Taught: Fall 2022, Fall 2021, Fall 2020.

Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 793 Actuarial Models I**

3 cr. Graduate.

Long term insurance coverage, single life survival models, life insurance, annuities, benefit and premium random variables, mortality models.

**Prerequisites:** graduate standing. **Last Taught:** Fall 2022, Fall 2020.

Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 794 Actuarial Models II**

3 cr. Graduate.

Long term insurance coverage, single life survival models, life insurance, annuities, benefit and premium random variables, mortality models.

Prerequisites: grad st; ACTSCI 593(P); MTHSTAT 362(P).

Last Taught: Spring 2023, Spring 2021.

Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 796 Actuarial Statistics I**

3 cr. Graduate.

Loss models for short term insurance and their statistical fitting.

Prerequisites: graduate standing.

Last Taught: Fall 2021.

Current Offerings: https://catalog.uwm.edu/course-search/

# **ACTSCI 797 Actuarial Statistics II**

3 cr. Graduate.

Credibility theory, ratemaking and reserving.

**Prerequisites:** graduate standing. **Last Taught:** Spring 2022, Spring 2020.

Current Offerings: https://catalog.uwm.edu/course-search/

## **ACTSCI 891 Actuarial Risk Theory**

3 cr. Graduate.

Risk models; premium principles; reinsurance contracts; ruin theory;

ordering of risks; bonus-malus systems; IBNR techniques.

Prerequisites: grad st; MATH 571(P) & ACTSCI 596(P), or consent of

instructor.

Course Rules: Previously MTHSTAT 795.

Last Taught: Spring 2022, Fall 2019, Fall 2017, Fall 2015.

Current Offerings: https://catalog.uwm.edu/course-search/

#### **ACTSCI 895 Topics in Actuarial Science:**

3 cr. Graduate.

Advanced topics in actuarial science.

Prerequisites: graduate standing; 6 credits of 700 level ACTSCI

coursework.

Course Rules: Repeatable to 9 credits max. Counts as a repeat of

MTHSTAT 896 with a similar topic. **Last Taught:** Spring 2023, Spring 2021.

Current Offerings: https://catalog.uwm.edu/course-search/